PUBLIC SAFETY PSWN PROGRAM WIRELESS NETWORK

Public Safety Wireless Network

Saving Lives and Property Through Improved Interoperability

July 7, 2003

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 Twelfth Street, SW
12th St. Lobby, TW–A325
Washington, DC 20554

Re: PSWN Program Comments to the Commission's Notice of Inquiry, *In the Matter of Inquiry Regarding Carrier Current Systems, including Broadband over Power Line Systems*, **ET Docket No. 03-104.**

Dear Ms. Dortch:

On behalf of the Public Safety Wireless Network (PSWN) Program and pursuant to Sections 1.51 and 1.430 of the Commission's Rules, 47 C.F.R. §§ 1.51, 1.430 (2002), enclosed herewith for filing are an original and four (4) copies of the PSWN Program's Comments in the above-referenced proceeding. Kindly date-stamp and return the additional marked copy of this cover letter and filing to the person delivering it.

Should you require any additional information, please contact the undersigned.

Respectfully submitted,

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Executive Vice-Chair,
PSWN Executive Committee

Don Pfohl
Communications Manager,
Oregon State Police
Member,
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Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of	)	
	)	
Inquiry Regarding Carrier Current Systems, including Broadband over Power Line Systems	)	ET Docket No. 03-104

To: The Commission

COMMENTS OF THE PUBLIC SAFETY WIRELESS NETWORK PROGRAM

Filed by: The Public Safety Wireless Network Program

Date: July 7, 2003

Before the
Federal Communications Commission
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COMMENTS OF THE PUBLIC SAFETY WIRELESS NETWORK PROGRAM

1. The Public Safety Wireless Network (PSWN) Program[1] Executive Committee (EC) respectfully offers the following Comments in response to the Notice of Inquiry (NOI) adopted by the Federal Communications Commission (Commission) pursuant to ET Docket No. 03-104.[2] The PSWN Program is optimistic that the development of broadband service using existing electrical lines holds promise for providing additional resources to members of the public that are currently underserved or may be unable to secure access to that technology because of geographic or other limitations. However, the Commission must balance the potential benefits of this service, and increased competition among incumbent access providers, with the need to thoroughly test this service offering to ensure that no interference or other damage will result to existing incumbent services, particularly wireless public safety communications.

[1] The PSWN Program is a federally funded initiative operating on behalf of all local, state, federal, and tribal public safety agencies. The Department of Justice and the Department of the Treasury are jointly leading the PSWN Program's efforts to plan and foster interoperability among public safety wireless networks. The PSWN Program is a 10–year initiative that is an effort to ensure that no man, woman, or child loses his or her life because public safety officials cannot talk to one another.

[2] Notice of Inquiry, In the Matter of Inquiry Regarding Carrier Current Systems, including Broadband over Power Line Systems, ET Docket No. 03-104, rel. April 28, 2003 (*NOI*).

I. INTRODUCTION

2. The PSWN Program observes that in the short time since this docket was initiated, the Commission has received in excess of 1,300 comments from interested members of the public. Many of these comments were submitted by amateur (HAM) radio operators that have expressed concern about the impact of this initiative on their ability to use spectral resources as currently permitted under the Commission's Rules. In their comments, several HAM radio operators have emphasized the contributions they have made in identifying and responding to emergencies, often alerting local, state, and federal authorities to critical situations as they occurred.[3] Their opposition is based largely on the premise that broadband over power line (BPL) technology "will create interference to many household AM radios and other low frequency communications such as ham radio, CB and other Part 15 devices (such as baby monitors, and even home wireless medical services)....[B]roadband cable and DSL/telephone lines are a clean method and should be encouraged. Adding a third system that threatens the complete HF radio spectrum is not sensible at all."[4]

II. BACKGROUND

3. The idea of providing high-speed Internet access using the existing low or medium voltage electrical lines present in the majority of American homes has been discussed for many

[3] *See, e.g.*, Comments of Jack R. Smith, In the Matter of Inquiry Regarding Carrier Current Systems, including Broadband over Power Line Systems, ET Docket No. 03-104, June 24, 2003; Comments of Mark M. Oring, In the Matter of Inquiry Regarding Carrier Current Systems, including Broadband over Power Line Systems, ET Docket No. 03-104, June 24, 2003; Comments of Rand D. Reynard, In the Matter of Inquiry Regarding Carrier Current Systems, including Broadband over Power Line Systems, ET Docket No. 03-104, June 24, 2003, at p. 1.

[4] *See* Comments of Thomas Cathey, In the Matter of Inquiry Regarding Carrier Current Systems, including Broadband over Power Line Systems, ET Docket No. 03-104, June 13, 2003. *Compare* Comments of Robert Tiller, In the Matter of Inquiry Regarding Carrier Current Systems, including Broadband over Power Line Systems, ET Docket No. 03-104, June 13, 2003; "Interference will be caused in the HF spectrum. There are many services that utilizing this range [including] Shortwave broadcasting, Amateur Radio, Utility HF Radio, and State Emergency Management organizations;" Comments of Mike Sawyer, In the Matter of Inquiry Regarding Carrier Current Systems, including Broadband over Power Line Systems, ET Docket No. 03-104, June 14, 2003, "it will radiate more products into, not only type 15 accepted device[s], but also amateur radio."

years.[5] It is only relatively recently, however, that the Commission has closely examined this technology as an alternative to cable modem, direct subscriber line (DSL), and other high-speed voice and data services, and authorized trials by a number of different providers in homes across the country,[6] including "precommercial deployments"[7] in Maryland, Virginia, Alabama, Missouri, Pennsylvania, California, Georgia, Michigan, Washington, and Ohio. The latest instance of broadband access using electrical carriers' facilities could present a viable alternative to Internet service, telecommunications, and cable providers, and increase competition within the marketplace.

4. Access BPL systems would provide high-speed voice and data communications using the medium voltage line from a chosen connection point to a telecommunications network, such as a substation, and operate in spectrum between 1.7 megahertz (MHz) and 80 MHz. In-House BPL operates in the frequency range between 4.5 MHz and 21 MHz, and transmits voice and data between the wiring and electrical outlets of a building. This service offering targets at-home networking and sharing of information between different devices. The Commission is optimistic that this technology will drive Internet access prices down, improve service for all users, and increase coverage.

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[5] *See* Dan Warne, "US gives blessing to powerline broadband," http://whirlpool.net.au/article.cfm/1112?show=replies, April 12, 2003.

[6] *See* "Utilities testing broadband over power lines," *Washington Internet Daily* via Newsedge, February 27, 2003; "It was only in the last two years that pilot projects started seriously testing the technology and the economics of deployment." *Id.*

[7] *See* "Utilities Turn Up The Juice On Power Line Communications," Xchangemag.com, May 1, 2003.

III. DISCUSSION

A. Access for Consumers Using BPL Technology Could Provide Broadband Service in Underserved Areas, Including Increased Services for Public Safety Entities

5. Commission Chairman Michael Powell is an outspoken advocate of the benefits of the digital broadband migration[8] and has maintained that this technology has the potential to put tools in the hands of people that can take advantage of the advances in information technology to allow them to work more efficiently and effectively. Such a migration could also bring these services to communities where cable modem, DSL, and other means of access are not available now, in the near future, or at any time in the future. BPL could also offer user convenience unmatched by other services, allowing access to the Internet in any room that has an alternating current (AC) power source.[9] The Commission has issued eight experimental licenses for BPL developers to test market this technology.[10]

6. On the other hand, the PSWN Program also notes that there is also a great deal of skepticism among competing services and applications that could be affected by BPL. Research of these issues, performed both domestically and internationally, indicates that adoption of this technology would create interference with high frequency (HF) users. Finland has refused to authorize power line communication (PLC),[11] and Japan has noted "leakage of electric waves

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[8] *See, e.g.*, Michael K. Powell, Press Conference [as prepared for delivery], "The Broadband Migration," October 23, 2001; Separate Statement of Chairman Michael K. Powell, Re: Inquiry Regarding Carrier Current Systems, including Broadband over Power Line Systems, Notice of Inquiry, ET Docket No. 03-104, April 28, 2003.

[9] *See* "FCC Chairman Powell Visits Current Technologies Broadband Over Power Line Network in Potomac," PR via Newsedge Corporation, April 10, 2003, "The Current Technologies solution needs no truck roll to a home and provides customers broadband access at symmetrical speeds that are better than DSL and cable modem through proprietary equipment that is attached to utility power lines." *Id.*

[10] *See* NOI, ET Docket No. 03-104, at para. 7. The National Organization for Amateur Radio in the United States (*ARRL*) Web site, http://www.arrl.org/tis/info/HTML/plc/, which further notes these licensees include Ambient Corp., Ameren, Amperion, the City of Manassas, VA, Current Technologies, PPL Utilities, Progress Energy, and Southern Telecom.

[11] *See Radioamatoori*, "PLC for the present rejected by Finnish Telecommunications Minister," pp. 12–17, June 2001.

from power lines—specifically in cases of providing Internet access via power lines to homes," with the Japanese Ministry of Public Management, Home Affairs ultimately ruling that "it is too early to allow PLC between 2 MHz and 30 MHz due to hazardous effects on HF users."[12] Some European developers have cited delays caused by "regulatory issues and slow sales" of PLC and withdrawn plans for further deployment.[13] Other comments have also noted that adoption of this technology as a means for transmitting voice, data, or video communications could also create interference to mobile operations and base stations of police and fire personnel, and military communications in those frequencies, as well as the Military Affiliate Radio System and Civil Air Patrol bands.[14]

B. Broadband Over Power Line Technology Must Be Thoroughly Tested

7. The recent technology trials that led to this docket have been described as successful and participants compared the results favorably with DSL and cable access services. But aside from these limited demonstrations from would-be commercial providers, there is little hard evidence that indicates that BPL service is a safe alternative to other, proven technologies that will not cause interference to existing applications. The data generated by these trials has not been disclosed, and it remains unclear whether interference concerns and potential system overload

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[12] *See* Comments of Zachary D. Little, In the Matter of Inquiry Regarding Carrier Current Systems, including Broadband over Power Line Systems, ET Docket No. 03-104, May 5, 2003, *Japan's Government Concluded That It is not suitable to allow HF band for PLC*, http://www.jarl.or.jp/English/4_Library/A-4-1_News/ jn0208.htm. (attachment at pp. 1–2). *See also* Comments of Jim Gilinsky, , In the Matter of Inquiry Regarding Carrier Current Systems, including Broadband over Power Line Systems, ET Docket No. 03-104, June 19, 2003, at p. 1.

[13] *See, e.g.*, John Leyden, "Siemens pulls plug on Net over power cables technology," *The Register*, September 20, 2002, http://www.theregister.co.uk/content/archive/17775.html; Jay Lyman, "Shocking Concept: Internet Over Electrical Lines," *NewsFactor Network*, March 27, 2001, http://www.newsfactor.com/perl/story/8431.html Lucy Sherriff, "Nortel/Norweb pulls plug on internet over electricity scheme," *The Register*, August 9, 1999, http://www.theregister.co.uk/content/archive/6664.html.

[14] *See* Comments of Robert Schoenfeld, In the Matter of Inquiry Regarding Carrier Current Systems, including Broadband over Power Line Systems, ET Docket No. 03-104, May 6, 2003, pp. 1–2.

were evaluated in the tests that were performed. The need for remedial action in case interference results from the cumulative impact of widespread BPL service has not been addressed. Reports published in leading telecommunications journals have maintained that Internet access, telephony, and streaming video can all be supported by BPL service,[15] at speeds as much as four times greater than those provided by cable modem or DSL technology.[16]

C. The Commission Must Take Precautions to Ensure Power Lines Do Not Contribute to Interference for Licensed Incumbent Services

8. The Commission has permitted BPL developers and proponents to experiment with this service offering and conduct trials throughout the country to assess the feasibility of BPL technology. Because of the proprietary nature of the systems being implemented, the results of these trials will not be disclosed. Until such time as these conclusions are independently verified, and the Commission and National Telecommunications and Information Administration (NTIA) perform their own analyses, the Commission should refrain from permitting deployment of BPL systems to go forward. Instead, continued trial of BPL technology should be required in order to determine that it would not contribute to interference in the HF spectrum.

9. The Commission must take all necessary steps to ensure that widespread deployment of BPL does not increase the likelihood of interference for incumbent licensees in the affected bands. Frequency coordination of commercial systems will likely be necessary, and processes must be established to ensure that interference can be traced to the source. Power limits must be

[15] *See* "Utilities testing broadband over power lines," *Washington Internet Daily* via Newsedge, February 27, 2003.
[16] *See, e.g.;* Glenn Bischoff, TelephonyOnline.com, "FCC to study broadband over power lines," April 23, 2003; Lynmarie C. Cusack, "Existing Power Lines May Hold Key to Broadband Competition," http://www.gcglaw.com/resources/energy/broadband.html, May 2003.

established that will protect other incumbent services from interference, and other technical solutions should also be incorporated into BPL designs to monitor and reduce power levels if emissions are found to create interference. The Commission should also establish open standards for BPL, regulating equipment performance and promoting interoperability between different systems, should consumers decide to change vendors. Most importantly, the Commission must also verify emissions limits and ascertain whether current Part 15 limits are sufficient to prevent BPL services from causing interference to other low-power applications on the relevant spectrum bands,[17] especially those that are used in support of public safety communications.

IV. CONCLUSION

10. The PSWN Program thanks the Commission for the opportunity to comment on this docket and acknowledges the contributions of all those interested parties that have submitted their opinions in this rulemaking proceeding. The PSWN Program urges the Commission to continue to move forward in exploring the potential of BPL technology to provide additional services for consumers. However, the PSWN Program asks the Commission to exercise caution and to thoroughly examine the possible cumulative effects of providing broadband access using this technique. The Commission must also plan and implement appropriate safeguards to ensure that deployment of broadband over power line systems would not interfere with existing communications systems.

[17] *See* Title 47, Subpart C-Intentional Radiators, 47 C.F.R. § 15.209 (Radiated emission limits; general requirements).

11. The PSWN Program continues to support the Commission in promoting cutting-edge technologies to provide services and increase access to spectrum through the use of unlicensed devices. As the Commission has clearly acknowledged, "high-speed BPL devices that use wide spectrum was not contemplated under the existing Part 15 rules when they were formulated,"[18] hence, it is not clear that Part 15 rules are appropriate for regulating BPL service, and further amendment of the rules may be necessary.[19] Adequate procedures and standards must be tailored to reconcile the use of BPL while making certain that police, fire and rescue, and other first responders will be able to depend on the reliability and efficiency of deployed communications systems. The PSWN Program is confident that the Commission will address the many conflicting issues surrounding this potential service.

[18] *See* NOI, ET Docket No. 03-104, at para. 7.
[19] *Id.*, at paras. 8–10.

Respectfully submitted,

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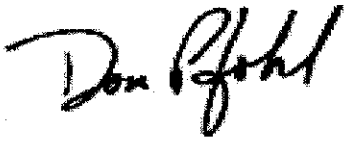

Don Pfohl
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Certificate of Service

Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of	)	
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Inquiry Regarding Carrier Current Systems,	)	ET Docket No. 03-104
including Broadband over Power Line Systems	)	

I, Richard N. Allen, Senior Associate, Booz Allen Hamilton, 8283 Greensboro Drive, McLean, Virginia, 22102–3838, hereby certify that on this date I caused to be served, by first-class mail, postage prepaid (or by hand where noted) copies of the Public Safety Wireless Network Program's Comments to the Commission's Notice of Inquiry, *In the Matter of Inquiry Regarding Carrier Current Systems, including Broadband over Power Line Systems,* ET Docket No. 03-104, the original of which is filed herewith and upon the parties identified on the attached service list.

DATED at Fair Oaks, Virginia this 7th day of July 2003.

Richard N. Allen

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